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ABSTRACT

The purpose of this study was to compare the effectiveness of several methods of acquiring data on the nontherapeutic use of drugs. Data were collected by means of an anonymous questionnaire, a Randomized Inquiry technique, and a Card-Sort procedure. Subjects totaled approximately 1,100 enlisted men, noncommissioned officers, and junior officers, both Vietnam veterans and men without such experience. The sample was obtained from four Army posts between September and November, 1971. For enlisted men, the questionnaire and the Randomized Inquiry technique yielded substantially equivalent drug usage rates; for officers, the Randomized Inquiry technique yielded somewhat higher rates than the questionnaire. The Card-Sort procedure, as used here, was less effective as a method of collecting data on drug usage. (Author)

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Technical Report 73-9

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A Comparison of Methods of Studying Illicit Drug Usage

George H. Brown and Francis D. Harding

HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

Approved for public release; distribution unlimited.

April 1973

Prepared for

Office of the Chief of Research and Development
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A Comparison of Methods of Studying Illicit Drug Usage

George H. Brown and Francis D. Harding

HumRRO Division No. 7 (Social Science)
Alexandria, Virginia 22314

HUMAN RESOURCES RESEARCH ORGANIZATION

Work Unit MODE

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The Human Resources Research Organization (HumRRO) is a nonprofit corporation established in 1969 to conduct research in the field of training and education. It is a continuation of the George Washington University Human Resources Research Office. HumRRO's general purpose is to improve human performance, particularly in organizational settings, through behavioral and social science research, development, and consultation. HumRRO's mission in work performed under contract with the Department of the Army is to conduct research in the fields of training, motivation, and leadership.

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FOREWORD

Both the military and the civilian worlds are currently beset with numerous critical social problems, among which are drug abuse, racial tension, and dissent. Improved methods of data acquisition are needed in these sensitive areas, in order to provide a more sound basis for effective ameliorative action. The research reported herein focuses on one of those problem areas, the nontherapeutic use of drugs, and compares the effectiveness of three different methods of investigating the magnitude of the problem.

This research was conducted by Division No. 7 (Social Science) of the Human Resources Research Organization, under Sub-Unit I of Work Unit MODE. Subsequent Sub-Units are concerned with (a) a comparison of drug usage rates as revealed by questionnaire and by urinalysis, and (b) studies of carefulness in responding to survey inquiries.

Work Unit MODE was initiated in January 1971. Dr. George H. Brown was Work Unit Leader. Members of the MODE staff, at different times, were Dr. Francis S. Harding, Dr. Thurlow Wilson, and Mr. John Richards. Dr. Arthur J. Hoehn is Director of Research of HumRRO Division No. 7.

Work Unit MODE is sponsored by the U.S. Army Research Office, Behavioral Sciences Division. Appreciation is expressed to the Office of Personnel Operations, DCSPER, and to the U.S. Continental Army Command, for their cooperation in making arrangements for the data collection. Appreciation is also expressed to the participating personnel at Fort Benning, Georgia, Fort Bragg, North Carolina, Fort Hood, Texas, and Fort Riley, Kansas,

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Meredith P. Crawford
President
Human Resources Research Organization

SUMMARY AND CONCLUSIONS

MILITARY PROBLEM

The nontherapeutic use of drugs is a growing social problem in the military as well as in the civilian world. Both the magnitude of the problem, and the effectiveness of prevention efforts, are typically assessed by means of anonymous questionnaire surveys. When the subject of investigation is an illegal activity (such as nontherapeutic drug use), survey results are of unknown validity. Subjects may lie to avoid the possibility of self-incrimination. A need exists for some means of evaluating the validity or preciseness of survey results, whenever a sensitive attribute is under investigation.

RESEARCH PROBLEM

This research was concerned primarily with comparing the drug usage rates yielded by several different methods of data acquisition. It was further concerned with investigating the effects of different conditions of questionnaire administration on drug usage rates shown in the resulting data.

APPROACH

Three different research instruments were administered to approximately 1,100 subjects distributed among four major Army posts. The various instruments employed were: (a) an anonymously administered 62-item questionnaire, concerned primarily with drug usage, both current and past; (b) a Randomized Inquiry technique, by which the proportion of a group that possesses a sensitive attribute may be estimated, while protecting the anonymity of the subjects; and (c) a Card-Sort technique for measuring, without the subject's awareness, his attitude toward the use of marijuana.

Research subjects included approximately 700 enlisted men (E1-E5) and 320 junior officers (01-03). The research instruments were administered to groups no larger than 30. Half the groups were formed in such a way as to include a majority of men with Vietnam experience, so that the effect of such experience on drug usage rates could be investigated. Half the enlisted groups were augmented by one to five noncommissioned officers, to investigate the effect of their presence on drug usage reported by low-ranking enlisted men.

Data were collected during the period of September - November 1971.

RESULTS

Primary Findings

(1) The percentages of enlisted men (E1-E5) who, on the questionnaire, admitted having used each drug type within the last month were: marijuana, 39%; hallucinogens, 17%; amphetamines, 16%; barbiturates, 10%; and narcotics, 5%.

(2) The corresponding percentages yielded by the Randomized Inquiry (RI) method were approximately the same except in the case of barbiturates, where the RI estimate was significantly larger (17%).

(3) For the officer data, the RI method consistently yielded higher estimates of drug usage than did the questionnaire. The disparities between the two kinds of estimates were much greater for officers than for the low-ranking enlisted men.

(4) The Card-Sort technique, while providing modest support for the theoretical formulations of its originator, did not yield a useful indicator of marijuana usage.

(5) The inclusion of NCOs in groups of low-ranking enlisted men completing the questionnaire had no appreciable effect upon reported drug usage rates.

Supplementary Findings

(1) Based upon the questionnaire data, drug usage rates were much smaller for officers than for enlisted men (5% for marijuana and less than 2% for each of the other drug types).

(2) Enlisted men with Vietnam experience were more likely than those without such experience to be current users of cocaine or narcotics. This was not true of the other drug types.

(3) There were significantly more ex-users of marijuana among enlisted men with Vietnam experience than among those without such experience.

(4) Use of drugs other than marijuana was far more common among men who had used marijuana than among those who had not used marijuana. This was true for both officers and enlisted men.

(5) Regular users of marijuana differed from "principled non-users" in a number of background characteristics (e.g., regular users were much more likely to be noncareer Army and to be very dissatisfied with their current assignment).

CONCLUSIONS

Based upon the data obtained in this survey, the following conclusions appear tenable:

(1) For low-ranking enlisted personnel (E1-E5), the anonymous questionnaire and the Randomized Inquiry technique yielded substantially equivalent drug usage rates.

(2) For officer personnel, the Randomized Inquiry technique, which affords greater assurance of anonymity, yields higher rates of drug usage.

(3) The Card-Sort technique, as employed in this research, is not a useful method for assessing drug usage rates.

(4) The responses of low-ranking enlisted personnel to an anonymous drug questionnaire are not adversely affected by the presence of NCOs.

(5) Vietnam experience is significantly related to current use of cocaine or narcotics.

(6) Subjects who have used marijuana are more likely to use other drugs than are subjects who have not used marijuana.

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A Comparison of Methods of Studying Illicit Drug Usage

Chapter 1

INTRODUCTION

THE MILITARY PROBLEM

In the military, as in the civilian world, the problem of the nontherapeutic use of drugs has been growing at an alarming rate. Stories in the popular press have alleged that huge percentages (some estimates as high as 80%) of Army personnel use drugs, especially marijuana, and sometimes it is alleged that Army life, especially within Vietnam, actually fosters drug abuse (Kaplan, 1).

Numerous unpublished surveys have been made in various Army commands, with varying kinds of populations and under various conditions of administration. Typically, it has been found that 20 to 50% of low-ranking enlisted personnel have used illegal drugs, generally marijuana or hashish. The higher percentages have been found during the past year. The highest percentage (63% who had ever used marijuana) was found in an unpublished survey of 1,010 enlisted Vietnam returnees, conducted in early 1971.

THE CIVILIAN PROBLEM

Numerous surveys of drug use among civilian populations have been conducted in recent years, and many others are, no doubt, currently under way. Ells (2) administered an anonymous questionnaire to 90% of the students at an all-male university, and found that 19.8% of the undergraduates had used marijuana. Results of a survey of five west coast colleges and universities (Blum, 3) found that an average of 18% had used marijuana.

The Department of Public Health and Welfare of San Mateo County, California has been conducting an annual survey of drug use among high school students since 1968 (4). The incidence of marijuana usage has steadily increased over the four years that the surveys have been conducted. In the most recent survey (May, 1971), 59% of the senior boys and 48% of the senior girls reported having used marijuana at least once during the past year. In contrast, the surveys show that rates of LSD usage have tended to level off since 1969. The percentage of senior boys who had used LSD during the previous year was 17% in 1969, and 21% in 1971; for senior girls, the increase was only 1%, from 11% in 1969 to 12% in 1971. One can have considerable confidence in the accuracy of these findings, since the questionnaires were administered and collected in such a way that the respondents could be highly confident of their anonymity.

Using an anonymous questionnaire, Goldstein *et al.* obtained survey data from 3,010 students at Carnegie-Mellon University (5). About 24% of the respondents reported having used marijuana. However, since this finding is based upon a return rate of only 67.6%, its significance is unclear. Goldstein reasons that the absence of data from the non-respondents served to *depress* the incidence figures for marijuana usage and amphetamine usage. One of the major elements of interest in Goldstein's study was an analysis of the background characteristics that differentiated users from non-users. In brief, he found that usage was higher among (a) Fine Arts or Humanities majors, (b) Jews and

those with no religion, (c) those with highly educated parents, (d) those with high income parents, (e) those who had lived in the suburbs, and (f) those who held more liberal political views.

Virtually all the research that has been done to determine incidence of drug use has involved the use of questionnaires. This is understandable because of the marked simplicity and economy of this research method. However, as has been pointed out by Berg (6), questions can always be raised about the accuracy of questionnaire results when the subject is an illegal activity, such as drug usage. People may be understandably reluctant to risk self-incrimination and may not believe assurance of their anonymity.

THE RESEARCH PROBLEM

A serious need exists for some means of evaluating the precision or accuracy of survey data whenever sensitive matters are the subject of inquiry. When a particular survey finds that 42% of the sample acknowledges having used marijuana, how close is this value to the true value? Can some way be devised for determining the limits within which the true value lies, at a specified level of confidence? In theory this could be accomplished, if an ultimate criterion were available against which the questionnaire data could be validated.

Unfortunately, an ultimate criterion is probably not attainable, except, perhaps, in some sort of ultra-contrived situation where the findings would not be generalizable to the typical survey situation. One could compose a group in which a known percentage of the members were admitted drug users. But individuals who have already admitted drug use, or who have been convicted of illegal drug use, are probably more likely to answer a questionnaire truthfully than actual drug users who have not admitted such use.

It might be supposed that chemical analysis of urine specimens could provide ultimate criterion data. However, such a plan would be subject to several serious problems: (a) At best, only certain illicit drugs are detectable via urinalysis (marijuana and LSD are not); (b) urinalysis will not detect drugs used more than about 72 hours prior to collecting the specimen; (c) chemical analysis is not a fool-proof method, with false positives and false negatives known to occur; (d) it would be extremely difficult to induce men to provide a urine specimen on a voluntary basis; and (e) important ethical questions might attend the participation of an independent research agency in a plan calling for the mandatory collection of urine specimens. It is thus not feasible to seek urinalysis data as an ultimate criterion for questionnaire validation.

Since no ultimate criterion appears to be obtainable, a different approach is being followed in Work Unit MODE in seeking to assess the validity of questionnaire results.

Chapter 2

METHOD

GENERAL APPROACH

In this first phase of Work Unit MODE, incidence of drug usage was assessed by a variety of methods (including a questionnaire) which were administered under several different conditions that might be expected to have some impact upon the honesty or validity of the results obtained. It was tentatively assumed that whatever method and condition of administration consistently yielded the highest incidence of drug usage was probably the most valid. It seems unlikely that non-drug users would, to any appreciable extent, falsely report themselves as users, although a few false positives might be expected as a result of random responding by uncooperative subjects who do not bother to read the questions.

It was hoped that the incidence figures yielded by the various methods (if they did not agree closely) would at least differ from each other in a consistent fashion, from one replication to another. In that event, it might be possible to develop "correction formulas" for use in converting the incidence figures obtained by one method into the values that would be expected under a different method.

The methods for assessing drug usage rates which were investigated in this study were: (a) an anonymous Drug Questionnaire (with an associated "lie scale"), (b) a Randomized Inquiry technique, and (c) a Card-Sort technique. These methods are described in the section on research instruments.

As has been explained, it is hardly possible to form groups that contain a known percentage of drug users. It is possible, however, to form groups that have a high probability of differing in their percentage of drug users.

It is well known that drug usage by military personnel in Vietnam is relatively high. In a worldwide survey of drug usage in the Armed Forces, Fisher found that 50.9% of Army personnel in Vietnam had used marijuana within the past year (7). Vietnam personnel had higher usage rates than personnel in other locations for most other categories of drugs. It is reasonable to assume that many such men will continue to use drugs after returning to the United States. Therefore, it was planned in Work Unit MODE to compose research groups in such a way that half of the groups would contain more than 60% Vietnam returnees, and half would contain 40% or fewer Vietnam returnees. If questionnaires, or other data-gathering techniques, are applied to these two kinds of groups and the results differ in the expected direction, then the validity of any technique that differentiates these groups will be somewhat substantiated.

In some preliminary exploratory work under Work Unit MODE, researchers held informal discussions with small groups of enlisted men and junior officers at a nearby military post. Although the researchers were middle-aged and of conventional appearance, it appeared that excellent rapport was established with the military personnel; this is not surprising since no efforts were made to elicit admission of drug use. The general purpose of the discussions was to learn the points of view of the discussants as to the best methods of studying drug usage in the Army. Much of the content of the present document stems from ideas and impressions obtained during these meetings.

One distinct impression acquired in these discussions, and one that is supported by the few Army surveys which have been done (e.g., Fisher, 7), is that drug usage appears to be much higher among lower-ranking enlisted men than among higher-ranking NCOs. Some studies suggest that junior officers, who tend to be somewhat similar in age to low-ranking enlisted men, are more likely to be drug users than high-ranking NCOs and high-ranking commissioned officers. In these informal discussions many low-ranking enlisted men freely admitted to using marijuana. It was clear that most of the NCOs were quite anti-drug in their orientation. Several commented that they are part of "the establishment" and are viewed as such by the lower-ranking enlisted men. One SFC said, "They regard us as the enemy." The suggestion was made that lower-ranking enlisted men might be much more cooperative and honest in taking a drug questionnaire if no NCOs were present. Accordingly, the present research also explored the effect of the "presence or absence of NCOs" on the drug usage rates found among groups of low-ranking enlisted men.

THE RESEARCH INSTRUMENTS

Each of the research instruments was, of course, designed primarily to obtain an estimate of the percentage of illicit drug users. One instrument, the questionnaire, sought to obtain much more than just incidence data. Each research instrument constituted one of the "methods" of assessing incidence of drug usage referred to in the preceding section.

DRUG QUESTIONNAIRE

The Drug Questionnaire was developed in the following way: A first draft was created by the senior author after examining many similar questionnaires developed by other researchers. Since the focus in Work Unit MODE is methodological, rather than on developing detailed information concerning patterns of drug usage, no attempt was made to be comprehensive in establishing the content areas of the questionnaire. Questions pertaining to marijuana are more numerous than those pertaining to any other drug type, only because marijuana usage is more controversial than the use of the other drug types. It was considered desirable to obtain information concerning the respondent's perception of the effects of marijuana usage upon himself and upon his unit's military efficiency.

The first draft of the questionnaire was informally reviewed and discussed with small groups of military personnel at nearby Fort Belvoir. Each group contained four to eight men of similar rank—either low-ranking enlisted men, NCOs, or junior officers. They were asked to read each question carefully and make comments or suggestions concerning (a) its clarity, (b) the appropriateness of its language, and (c) the appropriateness of the response options provided.

The questionnaire was revised in the light of the comments obtained, and the revised version was reviewed by four additional groups constituted in the same way as the previous review groups. After a few more revisions of a minor nature were made, the questionnaire was considered ready for use in the main data collection.

The final form of the questionnaire (see Appendix A) consists of 62 items distributed over the following content areas:

1. Military Status and Experience (9 items)
2. Demographic Characteristics (9 items)
3. Extent of Use of Major Types of Drugs (17 items)
4. Marijuana Use: History of, Circumstances of, and Reactions to (13 items)

5. Opinions Regarding Army Drug Policy (3 items)
6. Estimates of Extent of Drug Use in Unit (6 items)
7. Miscellaneous (5 items)

The last item in the questionnaire asked the respondent whether his answers had been influenced by the fear that perhaps he could get into trouble by being truthful.

MODE LIE SCALE

A short, 30-item "Personality Inventory" was included in the same booklet as the Drug Questionnaire. The instrument is far too short to yield an adequate general personality description; it was included not for this purpose but to provide a vehicle for administering a "lie scale," with the hope of identifying subjects who were overly concerned with making a "good" impression and whose questionnaire data, therefore, might be considered suspect.

Probably the first use of a lie scale was in the Minnesota Multiphasic Personality Inventory (MMPI) (8). A typical lie scale item is a statement of a socially desirable personality characteristic that actually applies to almost no one—for example, "I never put off until tomorrow what I should do today." A respondent who is earnestly trying to portray himself in a favorable light is likely to mark such an item as applying to himself. Any respondent who marks a large number of such items in the "favorable" way is said to have a high lie score and is suspected of systematically misrepresenting himself.

The lie scale on the MMPI consists of 15 such items, interspersed among a total of 561 items. Among various normal groups, the average score in the lie scale (of the MMPI) ranges between three and five. A score of five or six seems impossibly good and is considered grounds for at least suspecting that the subject is lying. Of course, a low lie score does not prove that the subject is responding honestly. In fact, a study by Meehl (8, p. 22) indicates that the lie scale is relatively ineffective with intelligent, sophisticated subjects.

The MODE Personality Inventory contains 10 lie scale items interspersed among 20 conventional-type personality items. Most of the lie scale items are modified versions of items borrowed from the MMPI. It was tentatively planned that any subject who marked more than five lie scale items in the favorable direction was to be considered a person who had not responded truthfully to the sensitive questions about drug use in the other questionnaire.

It was by no means certain that this attempt to identify untruthful respondents would be effective or worthwhile. It was entirely possible that most subjects would "see through" the lie scale items. Nevertheless, since the "personality inventory" could be included with no appreciable increase in data collection time or other costs, the decision was made to include it in the hope that it might prove to be useful.

RANDOMIZED INQUIRY TECHNIQUE

The Randomized Inquiry technique was originally developed by Warner (9), and elaborated upon by Greenberg (10), and by Simmons (11). Essentially, it is a technique for estimating the proportion of a group of people having a sensitive attribute, but doing so in such a way that the interviewer (or administrator) does not know whether any one particular subject possesses the sensitive attribute.

In its simplest form, this technique requires a subject to select, by chance, one from a pair of questions, one of which is sensitive and the other nonsensitive. He answers Yes or No to whatever question he has drawn. Since the subject knows that the administrator is unaware of which question he is answering, he has an enhanced feeling of safety from

self-incrimination, and is more inclined to answer honestly. Statistical processing of the data provides an estimate of the proportion of the group that possesses the sensitive attribute.

To carry out this procedure it is necessary to establish two random, nonoverlapping samples. Accordingly, each of our groups of 25 subjects was divided into two subsamples with Ns of 20 and 5, respectively. (The mathematics of the procedure are such that unequal Ns produce a smaller variance for the final estimated proportion of subjects with the sensitive attribute.)

As a randomization device, each subject was given a deck of 50 cards on which questions were printed. Deck 1, which was used with subgroup N_1, consisted of 40 cards having the sensitive question, "Have you used marijuana or hashish during the past month?" and 10 cards with the nonsensitive question "Have you eaten a cheeseburger during the past month?" Thus, for group N_1 the *p* value (probability of drawing a sensitive question) was .8. Deck 2, which was used with subgroup N_2, consisted of 10 cards with the sensitive question, and 40 with the nonsensitive question. For this group, the p value was .2.

Subjects were told to glance through their deck to see for themselves that it contained two kinds of questions. Next they were to draw a card, and to respond honestly Yes or No on their answer sheet to whatever question they had drawn.

Let: $\hat{\pi}$ = estimated proportion of the combined sample who possess the sensitive attribute (using marijuana).

$\underline{P}_1$ = proportion of cards in deck 1 which contain the question "Have you used marijuana, etc.?"

$\underline{R}_1$ = proportion of men in group N_1 who answer "Yes" (to whatever question they have drawn).

$\underline{P}_2$ = proportion of cards in deck 2 which contain the sensitive question.

$\underline{R}_2$ = proportion of men in group N_2 who answer "Yes" (to whatever question they have drawn).

According to the Simmons paper (11), the following formula provides an estimate of the proportion of the combined sample who have the sensitive attribute:

$$\hat{\pi}_1 = \frac{\underline{R}_1 (1 - \underline{P}_2) - \underline{R}_2 (1 - \underline{P}_1)}{\underline{P}_1 - \underline{P}_2}$$

The variance of this estimate is given by:

$$\text{Var } (\pi\ 1) = \frac{1}{(\underline{P}_1 - \underline{P}_2)^2} \left[\frac{(1 - \underline{P}_2)^2 \underline{R}_1 (1 - \underline{R}_1)}{\underline{n}_1} + \frac{(1 - \underline{P}_1)^2 \underline{R}_2 (1 - \underline{R}_2)}{\underline{n}_2} \right]$$

This technique was originally conceived as a device to be used in connection with live interviewing. Simmons' article describes his technique in terms of asking a single critical question of each respondent. However, in the research now being described, the technique was extended to include a number of critical questions. Each critical question was paired with a noncritical question, and for each pair of questions, two separate decks of cards were prepared.

Since the technique is somewhat cumbersome, it was used with only the following five critical questions:

1. Have you used marijuana (or hashish) during the past month?
2. Have you used LSD (or any other hallucinogen) during the past month?

3. Have you used speed or any other "upper" during the past month?
4. Have you used any barbiturates (downers) during the past month?
5. Have you used heroin (or any other hard drug) during the past month?

The nonsensitive questions that were paired with the five critical questions were:

1. Have you eaten a cheeseburger during the past month?
2. Do you have any brothers?
3. Were you born in the Eastern part of the U.S.?
4. Are both of your parents still living?
5. Have you seen any movies during the past month?

In selecting the nonsensitive questions, the following criteria were used: (a) They must be clearly nonthreatening, and (b) they should be of such a nature that a substantial proportion, but not a preponderance, of the group could honestly answer Yes.

CARD-SORT TECHNIQUE

This a variant of the "Own Categories" technique that was developed by Sherif *et al.* for the purpose of measuring a subject's attitudes without his awareness (12). The task assigned to the subject is to examine a large number of statements about a particular object (e.g., marijuana), and to judge the degree of favorableness or unfavorableness of each statement. More specifically, he is asked to sort the statements into categories (piles) with one category representing the most extremely favorable position and another the most extremely unfavorable position, and with other categories representing intermediate positions. The exact number of categories to be used is left up to the judgment of the subject.

According to Sherif's research, subjects with extreme views use fewer categories than those with more moderate or neutral views. Each subject's modal category represents the position most objectionable to him. If the modal pile for a particular subject is at or near the unfavorable end, it can be inferred that the attitude toward marijuana of that particular subject is near the other end of the scale, that is, the favorable end. In this way, each subject can be tentatively identified as "pro," "anti," or neutral with respect to marijuana. It is a plausible hypothesis that extreme attitudes with respect to drugs are associated with user versus nonuser behavior.

In creating the list of attitude statements for use in the Sherif technique, it is important that the list include several clearcut statements of each extreme position, and that it also contain a large number of intermediate items. Many of these intermediate items should be ones that are interpreted variously by different people. This is the type of statement that subjects having an extreme attitude tend to displace towards the opposite end of the scale. In other words, a subject with an extremely "pro" attitude tends to judge many of these intermediate items as being "anti." Similarly, subjects with an extremely "anti" attitude tend to judge many of the intermediate items as being "pro." In short, a person holding an extreme attitude tends to be relatively nondiscriminating when judging statements fairly discrepant from his own position.

In order to create a list of statements to be sorted by the subjects, a procedure described by Sherif was followed. First, an initial pool of statements about marijuana was collected from a variety of books, newspapers, and magazine articles. Some were reworded in order to ensure their comprehensibility across a wide range of ability levels.

This initial set of 80 statements was typed on cards and given to each of nine people (HumRRO research and secretarial personnel), with instructions to sort them into 11 piles on the basis of their degree of favorableness towards marijuana. Pile number one was to consist of the most extreme "pro" statements, pile number 11 the most extreme "anti" statements; the intermediate piles would represent intermediate positions.

Tabulation of the 11 piles identified statements at the two extremes and intermediate statements. The final list of 53 statements that was used in the main research comprised 10 clearly favorable statements, 10 clearly unfavorable statements, and 33 intermediate statements.

The Sherif technique (along with the other research instruments) was pilot tested with two groups (N=20) of enlisted personnel at Fort Dix, New Jersey. It was found that a great many of the tryout subjects obviously did not understand the directions and sorted the cards in an almost random fashion. It was decided that for the main data collection, the standard Sherif technique would be modified (simplified) to make it more appropriate for use with low-ranking enlisted men. (Sherif had collected data primarily from college students.)

Accordingly, in the main data collection, subjects were provided with "marker" cards for seven different piles. The marker card for pile 1 was labeled "very unfavorable" and that for pile 7 was labeled "very favorable." The other marker cards had only numerals (2-6) on them.

All statements were printed on plain IBM cards, with item numbers and subject ID numbers represented by punches. Subjects were told to read each statement and try to judge what attitude toward marijuana would be held by someone who made that statement. If the subject thought the statement indicated a very favorable attitude, he was to place it in pile 7; if he thought it indicated a very unfavorable attitude, he was to put it in pile 1. If the statement seemed to be neither for nor against marijuana, it was to be placed in pile 4. Lesser degrees of favorableness or unfavorableness would require placing the cards in piles 5 and 6, or 2 and 3. The subject was told that he could put as many or as few cards in each pile as he chose.

After sorting, the subject was directed to place one of the marker cards on top of each pile, and stack the piles in numerical order. He was also told to indicate which pile he "agreed with most" and which pile he "disagreed with most." All tabulations and data analyses were handled by computer.

DESCRIPTION OF THE SAMPLE

Data were collected at four major Army installations: Fort Bragg, North Carolina; Fort Riley, Kansas; Fort Benning, Georgia; and Fort Hood, Texas. These particular posts were selected on the basis of convenience and travel economy, from a list of six that had been recommended by DCSPER as large enough to provide the desired number of subjects of specified characteristics.

The research plan called for administering the MODE research instruments to 12 groups at each of the four posts. The groups were to be constituted as indicated in Table 1.

Table 1

Planned Composition of Sample

Group Numbers	Proportion of Vietnam Returnees	Composition by Rank
1 & 7	High	25 E1–E5
2 & 8	High	25 E1–E5 + 5 NCOs
3 & 9	Low	25 E1–E5
4 & 10	Low	25 E1–E5 + 5 NCOs
5 & 11	High	25 O1–O2
6 & 12	Low	25 O1–O2

Many of the groups from which the data were collected contained fewer subjects than the numbers specified in Table 1. If all groups had been at full strength, 320 subjects would have been obtained at each post for a grand total of 1280.

Data were actually collected from a total of 1100 subjects distributed among the four posts as follows: Fort Benning, 267; Fort Bragg, 285; Fort Hood, 252; and Fort Riley, 296. By rank, they were distributed as follows: E1-E5, 715; NCOs E6-E9, 64; and Officers 01-03, 321.

The small size of the NCO group stems from the fact that NCOs were not a subject of research interest in this project; only enough were included to permit assessment of what influence, if any, their presence would have on the questionnaire performance of low-ranking enlisted men. It is generally agreed that drug usage is extremely rare among senior NCOs. For convenience, we shall use the term EM to refer only to the men in the rank category E1-E5 and NCOs to refer to the higher enlisted ranks (E6-E9).

Although it was planned that the officer groups would contain only 01s and 02s, some posts found it necessary to substitute 03s in order to provide the required number of Vietnam returnees. Of the 321 officers in the entire sample, 55 were 03s.

From the original total sample of 1100, 54 subjects were eliminated—32 because they indicated, on the last item in the questionnaire, that they had not responded truthfully, 18 because they failed to answer this question, and 4 because their pattern of responses was so inconsistent that it was clear they had not been sincere in filling out the questionnaire.

The final sample consisted of 663 EM, 63 NCOs, and 320 officers.

Since this research project is primarily a methodological study, rather than a descriptive survey, the procedures used for selecting research subjects were not of such a nature as to ensure that the samples would be representative of specified populations.

The selection of particular individuals to serve as research subjects was left up to the project officer at each post. He was simply asked to provide 12 groups of subjects constituted as specified in Table 1. Thus, no claim can be made that these samples are representative of the particular posts that supplied them, or of the rank categories from which they were drawn. It is known, for example, that at one post all subjects were supplied by a single engineer battalion.

ADMINISTRATION PROCEDURES

The project officers were asked to inform research subjects simply that they were to participate in a research survey. Not surprisingly, however, many subjects reported in under the impression that they were appearing for a "drug class."

Because of the complexity of directions for administering certain of the instruments, it was necessary to restrict groups of subjects to a maximum size of 30. All administrations were conducted by one or the other of the two senior researchers. The amount of time required for one complete administration ranged from 1 to 1½ hours.

In order to sort the attitude statements in the Card-Sort technique, a sizable work surface was needed for each subject. Accordingly, each post was asked to provide a "testing room" equipped with tables rather than conventional desks. All but one of the four posts succeeded in filling this requirement. At the last post visited, tables were not available and considerable improvisation was necessary; some subjects sorted their cards on the floor. Nevertheless, it is believed that the quality of the data obtained was in no way impaired by the lack of ideal working conditions.

To simplify the distribution and collection of research materials, all the materials to be used by each subject were packaged in a string-tied oversized envelope that bore a conspicuous number from 1 to 30. All the contents of each envelope (or kit) bore the same number as that on the outside of the envelope.

The numbering system served two purposes: (a) it simplified the task of interrelating each subject's performance on the various research instruments, and (b) it made it possible to predetermine that the desired proportions of each group of subjects received the required type of card deck in the Randomized Inquiry technique. It was arranged that all kits with a number that was a multiple of "5" contained Randomized Inquiry decks of Type 2 (i.e., the probability of drawing a critical question was .2). All other kits contained decks of Type 1 (i.e., the probability of drawing a critical question was .8). By assigning the two types of decks in the manner indicated, it was certain that, regardless of the actual size of any group, approximately 80% of its members would get decks of Type 1 and 20% would get decks of Type 2.

Before each data collection began, the pre-assembled kits were positioned in a deliberately haphazard-looking pile at the front of the room. The senior author then made an introductory "speech" that went something as follows:

> My name is Dr. Brown and this is my associate, Dr. Harding. We are civilian researchers, employed by the Human Resources Research Organization, better known as HumRRO. We have been doing research for the Army for about 20 years. Have any of you here heard of HumRRO?
>
> Some of you may be under the impression that this is a drug class or a drug survey. Well, it is definitely not a drug class, and it is not really a drug survey in the usual sense of the term, although it will look something like a survey.
>
> As you know, the Army conducts drug surveys from time to time. Some of you may have participated in one or more. Whenever a drug survey is done, the results indicate that a certain percentage of the men use certain drugs. However, you can never be sure how much confidence to place in those percentages. Many men who filled out the questionnaire may not have been honest for fear of getting into trouble if they admitted doing something that is illegal.
>
> The research problem we are working on is this: How can you do a drug survey in such a way that you can believe the results you get? This is a tough problem and we are not positive we will find an answer. However, as a first step in tackling this problem we are using several different methods of getting information about drug use and drug attitudes and looking to see whether we get the same results with all methods, or whether one method gives higher percentages than another, and so forth. One of the methods we will use is a questionnaire; others involve sorting specialized cards in unusual ways. I'll explain the details of this later.
>
> At the front of the room, you see a pile of heavy envelopes, each tied together with string. There are exactly as many envelopes in the pile as there are men in the group. Each envelope contains a set of materials that I will want you to use, one at a time. Each envelope has a number on it and all the contents have the same number. The only reason for having the numbers is so that we can match up the various papers inside that you will work with.
>
> When I give the signal, I want each of you to come to the front of the room, and take an envelope to work with. I want you to pick your own so you will know that I have no record of which man got which envelope. After taking an envelope, sit down and await further instructions. I will ask you to remove certain things from the envelope, work with them in certain ways, and then put them back in the envelope and take out the next thing that I ask you to. When you are all through, you will put everything back in the envelope, and return the envelope to the front of the room.
>
> I want to emphasize that you will not sign your name to anything you do here today. There is no way that your name can be associated with the papers you fill out. So, I hope you'll be truthful, you have nothing to lose by doing so.

After the subjects had chosen their envelopes and returned to their seats, they were asked to open the envelopes and remove the deck of IBM cards (the Sherif Card Sort). Detailed instructions were then given for carrying out the card sort. When this activity was finished, the subjects were told to return the deck of cards to the kit, and remove the next items (the Randomized Inquiry card decks). After this activity was completed, and the RI materials were returned to the kit, the final item (the Questionnaire) was administered.

Upon completion, each subject replaced the questionnaire, tied up his kit, returned it to the front of the room, and departed.

It was the impression of the researchers that, on the whole, cooperation was excellent. Although no records were kept, there were probably no more than six or eight in the entire study who expressed resentment and noncooperativeness.

DATA ANALYSIS

Virtually all analyses were carried out separately for officers and EM, since these two groups are clearly two distinct populations, both in terms of drug-using behavior and of various other characteristics (e.g., age, education).

Since this research is primarily methodological, the data analyses placed particular emphasis upon comparing the indices of drug usage rates yielded by each of the three methods: Questionnaire, Randomized Inquiry, and Card-Sort. The first two of these methods are directly comparable in the sense that both contain the same five questions regarding drug usage during the past month. The Card-Sort technique is by no means parallel to the other methods, and yields only inferential information regarding the use of one drug: marijuana. Various analyses of the Card-Sort data were carried out with the hope of identifying an index of drug usage rates that would be systematically related to the indices yielded by the other two methods.

Other analyses were carried out to investigate (a) the effect of NCO presence upon the questionnaire responses of EM, and (b) the relationship between Vietnam experience and drug-using behavior.

The questionnaire data were also analyzed so as to obtain information regarding (a) the relationship between marijuana usage and the use of other drugs, and (b) the characteristics differentiating "committed users" and "principled nonusers"[1] of marijuana.

The Card-Sort data were also analyzed to identify specific beliefs about marijuana that are most acceptable to people with different attitudes about marijuana.

[1] This is a term originated by Hogan *et al.* (13) to designate individuals who said that they had not and never would use marijuana.

Chapter 3

RESULTS

DRUG USAGE RATES AS REVEALED BY THE QUESTIONNAIRE AND BY RANDOMIZED INQUIRY

The relationship between within-last-month drug usage rates as determined by the Questionnaire and by the RI technique is presented in Table 2 for the sample of 663 EM. According to the questionnaire results, 39% of the EM had used marijuana during the previous month. According to the Randomized Inquiry method, 36% had done so. The difference between these two estimates is not statistically significant.

For each of the other drug types, the RI estimate is numerically larger than the questionnaire estimate, although the difference is statistically significant only with respect to barbiturates.

Table 2

Within-Last-Month Drug Usage by EM as Estimated by Questionnaire and by Randomized Inquiry
(N = 663)

Drug	Questionnaire		Randomized Inquiry		t^a
	Percent	Standard Error	Percent	Standard Error	
Marijuana	39	1.9	36	3.2	.47
Hallucinogens	17	1.5	21	3.0	1.12
Amphetamines	16	1.4	18	2.8	.56
Barbiturates	10	1.2	17	3.0	2.06*
Narcotics	5	.8	6	2.8	.19

[a]Based on differences between correlated proportions. The symbol * indicates statistical significance, $p<.05$.

Unfortunately, in the absence of any ultimate criterion, it is not possible to empirically determine which of these two methods of data acquisition gives the more valid results. It seems safe to assume that the questionnaire-based estimates are, at worst, underestimates, because nondrug users would be unlikely to falsely report themselves as having used a drug. Since the RI method, by its nature, is extremely nonthreatening to subjects, the percentages it yields are probably not underestimates, at least not consistently so. Admittedly, the standard errors (SE) of the RI estimates tend to be large, which means that these estimates are less precise, and more subject to error.

No explanation is apparent for the fact that with respect to barbiturates, the RI estimate is *significantly* larger than the Questionnaire estimate.

A similar comparison of the two methods, as applied to the officer sample, is presented in Table 3. Rather large disparities are found between the two kinds of estimates, with the RI estimates consistently larger. The difference is statistically significant only with respect to hallucinogens. It is noteworthy that the differences between the

RI estimates and the Questionnaire estimates are much more pronounced in the case of officers. It is interesting to speculate that this comes about in the following way: Officers feel more threatened than the EM by the possibility of apprehension for drug abuse, since they are expected to uphold higher standards of conduct. Since the RI method gives a much greater assurance of anonymity than does the questionnaire, and since officers, because of their intelligence and sophistication, can appreciate the greater safety from incrimination provided by the method, it follows that officers would be inclined to cooperate fully on the RI method, but to suppress admission of drug use on the questionnaire. If this line of reasoning is correct, then, for the officer data, greater confidence should be placed in the RI estimates than in the questionnaire estimates.

Table 3

Within-Last-Month Drug Usage by Officers as Estimated by Questionnaire and by Randomized Inquiry
(N = 320)

Drug	Questionnaire		Randomized Inquiry		t^a
	Percent	Standard Error	Percent	Standard Error	
Marijuana	5.0	1.2	9.0	4.1	.88
Hallucinogens	1.6	.7	11.6	4.0	2.30*
Amphetamines	1.9	.7	8.0	3.3	1.69
Barbiturates	.6	.4	7.9	3.9	1.72
Narcotics	.3	.3	4.0	3.9	.89

[a]The symbol * indicates statistical significance, $p<.05$.

A GENERALIZED TEST OF THE RANDOMIZED INQUIRY METHOD

Since no ultimate criterion of drug use was available against which to evaluate the RI data, an attempt was made to improvise a criterion. On the assumption that few men would falsely admit drug usage on the questionnaire, the questionnaire-based percentage of drug users can be regarded as a minimum estimate of the true value. Thus, it is hypothesized that the true percentage cannot be less than that revealed by the questionnaire. The RI method, since it conveys a greater assurance of anonymity, might well produce higher—but not lower—percentages than those yielded by the questionnaire.

Three artificial groups of 100 EM were formed comprising, respectively, 25, 50, and 75 subjects who admitted marijuana use on the questionnaire. The remainder of the members of each group included a random sample of EM who had not admitted marijuana use on the questionnaire. There was no overlap among the three groups. The RI percentages for these groups were computed. The results are presented in Table 4.

Table 4 shows that the RI percentages are somewhat larger than the questionnaire percentages for the first two groups. It is surprising to note that for group 3, the RI percentage is considerably smaller than the built-in questionnaire percentage (62.2% vs. 75%). A statistical evaluation of the significance of this difference would not be meaningful, since no standard error can be computed for the questionnaire percentage of a "stacked" group such as this.

A standard error was computed for the RI percentage and was found to be 7.1%. This value is quite large, and is entirely consistent with the hypothesis that the true percentage must be at least 75%. In other words, the assumed true value is within

Table 4

Comparison of the Questionnaire and Randomized Inquiry Method With Artificial Groups of 100 EM

(Percent)

Group	Admitted Marijuana Use	Estimated Use Based on RI
1	25	27.5
2	50	52.3
3	75	62.2

approximately two standard errors of the RI value. Discrepancies of this size do not inspire confidence in the RI technique, at least as used in this exercise and with an N of this size.

The principal advantage of the Randomized Inquiry method is that it strongly encourages subjects to respond truthfully to questions that, under ordinary circumstances, they might be unwilling to answer. The method thus would be expected to yield more valid information than a questionnaire about the incidence of undesirable attributes. The method also has the advantage of being interesting, even intriguing, to many subjects.

The principal disadvantage of the method is that the estimated proportions that it yields tend to have larger standard errors (be less reliable in the statistical sense) than questionnaire-based estimates. The gain in validity is offset by the reduction in reliability.

As noted by Simmons (11), Randomized Inquiry is not a unique procedure, but a large family of related approaches. All share the feature of requiring the respondent to answer a question that is known only to himself, thus providing him with foolproof protection against self-incrimination. Simmons briefly describes several different versions of the method. The version employed in the present study is referred to as the "unrelated question model."

Even within the unrelated question model, variations are possible—each with its advantages and disadvantages. A general disadvantage of this model is that at least some useless data are collected. For example, in the present study, any subject who selects and answers the question about cheeseburgers is not actually providing any useful information. The greater the proportion of subjects who give answers to such innocuous questions, the more unreliable is the computed estimate of the proportion possessing the sensitive attribute (drug use), or more technically, the greater the probability of each subject drawing a sensitive question, the smaller is the standard error of the computed estimate of drug users.

This line of reasoning suggests that the reliability of the computed estimate can be increased by maximizing the probability of drawing a critical drug question. In the present study, subjects who used Deck 1 had an .80 probability of drawing drug questions (40 out of the 50 cards in the desk pertained to drug use; 10 were innocuous questions). Suppose the probability had been .95 or .98. In that case, the estimate would have a much smaller standard error, but might be grossly inaccurate because the credibility of the procedure might have been seriously weakened. If the subject can see that 49 out of the 50 cards in his deck pertain to illicit drug use, that he has only one chance in 50 of drawing a "cheeseburger question," he may feel that it would be dangerous to give a "Yes" response. If the probability of drawing a critical question is 100% (as is the case with a conventional questionnaire), then the apparent "safety" of the situation is minimal.

Further research is needed to determine how high the probability of drawing a sensitive question can be pushed before the credibility of the procedure is compromised. Such research would employ different probability values with different groups of subjects, and would include a direct question of each subject concerning his degree of confidence or trust in the situation.

The particular version of the Randomized Inquiry technique used in this study involved decks of cards from which subjects made a random selection. The arrangement is cumbersome from the researcher's point of view. The task of creating, transporting, distributing, and so forth, the bulk of materials is burdensome. It would be interesting to determine the acceptability of using a spinning pointer, instead.[1] This technique would be relatively simple to use with large groups of subjects. It remains to be seen whether such an arrangement would be as stimulating to the subjects as was the card shuffling exercise.

POSSIBLE MARIJUANA USAGE INDICATORS FROM CARD-SORT DATA

As previously explained, the Card-Sort technique used in this research project was a modification of the "Own Categories" technique developed by Sherif. The modifications were in the nature of simplifications to make the technique feasible with heterogeneous groups of EM, many of whom had failed to comprehend the Sherif version used in the MODE pretest.

The card sort data were analyzed in a variety of ways in quest of (a) an indirect indicator of marijuana usage, (b) evidence that would support or refute Sherif's theoretical formulations, and (c) useful information regarding the beliefs about marijuana held by individuals with different explicit attitudes.

MARIJUANA-USING BEHAVIOR AND MOST-AGREED-WITH SELECTION

As noted previously, the subjects were asked, after sorting the 53 statements into seven piles, to indicate which pile they agreed with most. *A priori*, one would expect a positive relationship between the favorableness of the pile selected and the number of marijuana users who selected that pile as most-agreed-with. A man was counted as a marijuana user if, on Question 27, he indicated any current use, that is, if he marked any response other than "not at all."

Table 5 presents the results of this analysis, based on the entire sample of 1,021 men for whom appropriate data were available. A systematic relationship is clearly evident, although it is much less marked than might have been expected. The more favorable the pile number, the greater the proportion of the subgroup who admitted current use of marijuana. Still, only 53% of those who selected the most favorable pile as their most-agreed-with pile admitted current use.

Evidently there are many men in the sample who hold very favorable views towards marijuana but are not current users, or at least do not admit to being so.

It is clear that the relationships appearing in Table 5 are not powerful enough to be of practical use in identifying marijuana users just from selections of the most-agreed-with pile.

[1] With such an arrangement, each subject would be given a spinning pointer and a question and answer sheet. The subject would be instructed to spin his pointer and note where it comes to rest. If the pointer stops on a segment labeled "1," the subject would answer question "1," and so forth.

Table 5

Most-Agreed-With Pile and Marijuana-Using Behavior
(N = 1021)

Most-Agreed-With Pile	N	Percent Currently Using Marijuana
1 (Very unfavorable)	189	11
2	67	11
3	54	11
4	101	21
5	70	32
6	89	40
7 (Very favorable)	451	53

A more refined analysis of the same general nature was then tried. Data were analyzed separately for officers and for EM. (NCOs were disregarded because the sample size was so small.) Three different indications of marijuana usage (from the questionnaire data) were used. The results of this analysis are presented in Tables 6 and 7.

Both tables show, for all three indicators, a modest, but discernible, relationship between favorableness of the most-agreed-with pile and marijuana-using behavior. The relationship is somewhat stronger for the EM than for the officers. In no case, however, is the relationship strong enough to be useful in individual prediction.

Table 6

Relationship Between Most-Agreed-With Pile and Indices of Marijuana Use by Enlisted Men
(N = 639 EM)

Most-Agreed-With Pile	Those Who Chose Pile		Percent Who Ever Used Marijuana	Percent Currently Using Marijuana	Percent Who Used in Last Month
	N	Percent			
1	110	17	49	12	14
2	19	3	53	26	16
3	20	3	65	25	15
4	50	8	58	29	10
5	35	5	83	57	31
6	49	8	73	53	37
7	356	56	78	64	55

Table 7

Relationship Between Most-Agreed-With Pile and Indices of Marijuana Use by Officers

(N = 314 Officers)

Most-Agreed-With Pile	Those Who Chose Pile		Percent Who Ever Used Marijuana	Percent Currently Using Marijuana	Percent Who Used in Last Month
	N	Percent			
1	63	20	19	2	0
2	45	14	18	4	0
3	33	11	21	3	3
4	44	14	43	7	5
5	31	10	35	7	6
6	36	11	39	12	17
7	62	20	39	16	8

It would have been interesting had the percentage of men who chose pile 7, the most favorable pile, approximated the percentage who admitted current marijuana use. However, this was not the case. Fifty-six percent of the EM selected pile 7 as their most-agreed-with pile, as contrasted with 39% who admitted current marijuana use. For the officers, the corresponding percentages were 20% and 5%.

DISPLACEMENT OF INTERMEDIATE ITEMS AND MARIJUANA-USING BEHAVIOR

In his research with the "Own Categories" technique, Sherif found that individuals who are "highly involved in an extreme position" tend to displace "intermediate" statements away from their own stand. They tend to feel that any position not close to their own is somewhat opposite to their own. This phenomenon is similar to that which has been observed on the national scene in which "hawks" and "doves" (with respect to the Vietnamese war) each regard neutralists as tacitly supporting the opposing stand.

It was thought that the Card Sort data obtained in the present research might provide evidence relevant to the Sherif principle, and conceivably might yield an indirect measure of marijuana-using behavior.

Two groups of subjects were established, representing the two extreme views on marijuana usage. All subjects whose responses to Question 20 indicated that they had never used marijuana and never intended to were labeled "principled non-users." There were 180 EM in this category. All men who, on the same question, responded that they had used marijuana many times and expected to continue, were called "committed users." There were 140 EM in this category. Thus, two groups of men who were highly involved in extreme positions with respect to marijuana were identified.

Next, a group of intermediate statements was empirically identified as follows: First, a favorableness index was computed for each of the 53 statements. The number of the pile to which each subject assigned a particular statement was regarded as a favorableness rating. The mean favorableness rating was computed for each item, using the entire sample of 1,100 men, and regarded as a favorableness index. By examining the distribution of favorableness indices, 12 statements were identified that were intermediate in

value (indices between 3.6 and 4.5), and that were characterized by considerable variability in the ratings assigned them (standard deviation of 2.0 or higher).

According to Sherif's hypothesis, these intermediate statements should be displaced, by individuals holding extreme positions, toward the opposite end of the scale. Specifically, we would expect the mean favorableness index (mean pile number) of these statements to be higher for the principled non-users than for the committed users.

Such was indeed found to be the case. The mean favorableness index to which these intermediate statements were assigned was 4.05 for the principled non-users, and 3.71 for the committed users. This difference was statistically significant ($p < .01$, t 3.64).

While these data are consistent with Sherif's principle, the absolute difference between the means of the two groups (.66) is obviously too small to be of practical significance. There is no possibility of using an individual man's score on the intermediate statements as a basis for the identification of marijuana users.

Sherif also found that "highly involved subjects"—that is, those who are strongly committed to an extreme stand on a controversial issue—tend to place a disproportionate number of items in the extreme category farthest removed from their own position. From this it follows that a positive correlation should be found between (a) number of items placed in the extremely unfavorable pile (pile 1), and (b) frequency of use of marijuana. (This deduction involves the further assumption, which seems perfectly reasonable, that frequency of use of marijuana is an indication of attitude toward marijuana.)

Accordingly, a Pearson product-moment correlation coefficient was computed between (a) numbers of items in pile 1, and (b) response to Question 27 (frequency of use of marijuana). The resulting coefficient was only +.041, too small to be of statistical significance or practical value.

NUMBER OF "MOST UNFAVORABLE" ITEMS AND MARIJUANA-USING BEHAVIOR

Another implication of Sherif's principle is that individuals who are highly involved in an extreme position will place more items in the pile representing the opposite end of the scale than in the pile representing their own extreme position. This implication was tested in two ways.

In one test, the mean number of items placed in each of the seven piles was computed for the same groups of "principled non-users" and "committed users" previously mentioned. The results are presented in Figure 1. These data do not support Sherif. Not only do both groups of subjects place the largest number of items in the most favorable pile (pile 7), but the committed users place significantly more items in pile 7 than do the principled non-users. (This difference in mean number of items placed in pile 7 is highly significant statistically.) This result is the exact opposite of what would be predicted by Sherif. Incidentally, the two groups of subjects also differ significantly in the number of items placed in piles 3 and 4.

A second test of this implication of Sherif's analysis was carried out to determine whether committed users could be identified by a tendency to place more items in the extremely unfavorable category (pile 1) than in the extremely favorable category (pile 7). Of the entire sample, 314 subjects placed more items in pile 1 than in pile 7. Of these only 7% qualified as committed users. Among 664 subjects who placed more items in pile 7 than in pile 1, 19% were committed users. These results are exactly opposite to what would have been predicted by Sherif's principle.

Our failure to confirm the principle for which Sherif and his associates have found extensive evidence may be due to one or more of the following reasons: For one, the

Mean Number of Statements Placed in Each Pile by "Principled Non-Users" and by "Committed Users" of Marijuana

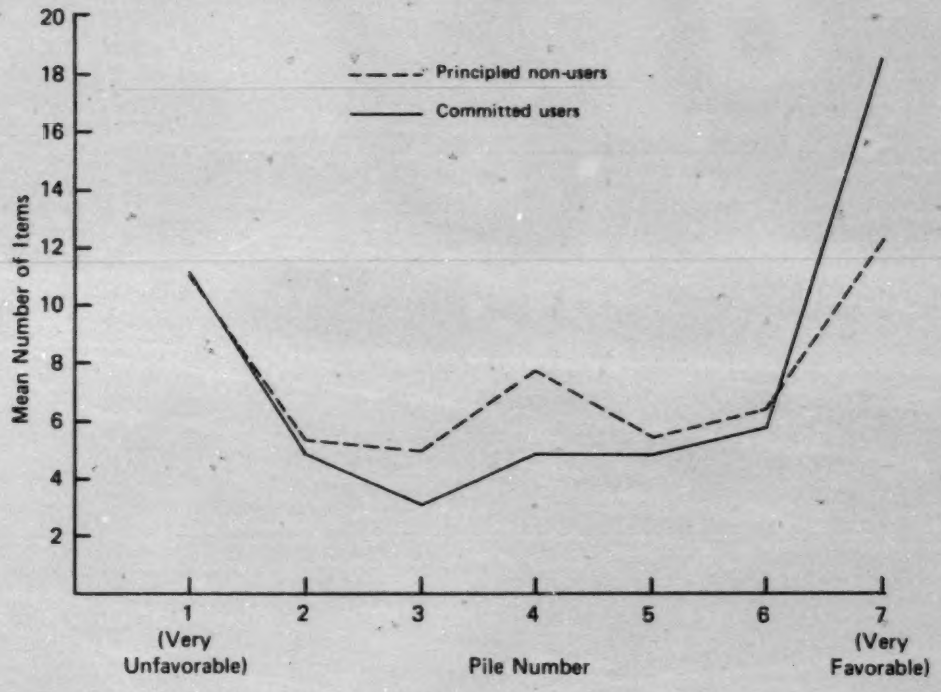

Figure 1

bulk of Sherif's studies required the subject to form his *own* categories—to form as many different piles as he felt were required to represent the discriminably different degrees of favorableness of the statements presented. The MODE study, in contrast, provided marker cards for each of seven piles, with the extremes clearly labeled, and thus tended to induce most subjects to use exactly seven categories. The more highly structured nature of these instructions, as compared with those of Sherif, may have militated against confirmation of Sherif's principle.

It also seems highly likely that the sorting of these items was strongly influenced, in as yet unanalyzed ways, by the specific nature of the pool of items to be sorted. Sherif does not give explicit directions as to how an item pool should be constructed. It is entirely possible that the pool of marijuana statements used in the present study contains a disproportionately large number of statements which, by an objective criterion, are actually favorable toward marijuana. The most objective indicator available for assessing the "true" favorableness of our statements consists of the mean favorableness indices based upon the sortings of all 1,100 subjects—officers, NCOs, and EM. An examination of these indices reveals that a total of 25 statements have mean ratings on the favorable side (4.5—7), 17 in the neutral zone (3.5—4.4), and 11 on the unfavorable side (1—3.4). Evidently, our earlier attempt to form an item pool that was "balanced" was not successful, when judged in the light of "favorableness" ratings by the entire sample of 1,100 men. Since by the latter criterion our pool contained twice as many favorable as unfavorable items, it is not surprising that both the committed users and the principled

non-users placed more statements in the extremely favorable pile. This tendency was further enhanced by the fact that 10 of the 17 "favorable" items had small standard deviations (indicating that they were relatively clear-cut, non-ambiguous, and tended to be perceived by most subjects as clearly favorable.)

RELATIONSHIP BETWEEN "LIE SCORES" AND ADMITTED DRUG USE

As previously explained, a so-called "Personality Inventory" consisting of 30 items was incorporated within the questionnaire booklet. Its only purpose was to provide a vehicle for presenting 10 lie scale items. It was hoped that a significant relationship might be found between lie scores (number of lie scale items marked favorably) and the tendency to admit drug use. If such a relationship existed, it might be possible to identify and then eliminate questionnaires in which the individual respondents were purposely making themselves look good.

To evaluate the usefulness of the lie scale, lie scores were computed for each subject, and the subjects were then sorted by lie score. For each possible lie score (1 – 10), the proportion of subjects who admitted current use of any kind of drug was computed. The results are presented in Table 8.

Table 8

Relationship Between Lie Score and Admission of Current Drug Use

(Bassed on total sample of 1,100)

Lie Score	Number of Subjects With This Score	Number Admitting Drug Use	Percent Admitting Drug Use
0	107	45	42
1	197	67	34
2	244	94	38
3	213	83	39
4	158	62	39
5	95	35	37
6	55	21	38
7	21	9	41
8	8	3	37
9	2	1	50
10	0	0	0
Totals	1,100	420	38

It is clear, from examining Table 8, that there is no systematic relationship between lie score and tendency to admit drug usage. Those with high lie scores are no less likely than those with low lie scores to admit current drug usage. Thus, we must conclude that this lie scale is of no value in identifying individuals who falsely deny drug use.

EFFECT OF NCO PRESENCE ON REPORTED DRUG USAGE RATES BY EM

The research design called for the addition of five NCOs to half the 25-man groups of EM to determine whether their presence would depress the drug usage rates reported

by the EM. In actually collecting the data, no group contained the expected five, but most groups that were supposed to contain five did contain one or two.

The total number of EM who took the questionnaire with NCOs present was 331, and the number who did so with NCOs absent was 336.[1] Table 9 indicates the reported drug usage rates for the two groups.

Table 9

Effect of NCO Presence on Drug Usage Rates Reported by EM

Drug Type	Percent of EM Who Reported Current Use		Chi Square[a]
	With NCOs Absent (N = 336)	With NCOs Present (N = 331)	
Marijuana	51.8	45.9	2.73
Hallucinogens	24.4	21.5	1.18
Amphetamines	24.7	24.5	.32
Barbiturates	17.3	18.7	.54
Cocaine	8.0	9.4	.37
Narcotics	8.9	10.6	.51

[a]To be significant at the .05 level, with one degree of freedom, Chi Square would have to reach a value of 3.84.

For the first three drug types, the percentage of men reporting current use is somewhat higher for the EM who completed the questionnaire with no NCOs present. In no case is the difference statistically significant, however.

These data suggest, then, that the performance of EM in taking a drug questionnaire is not adversely affected by the presence of NCOs. It should be pointed out, however, that the conditions under which this questionnaire was administered were calculated to maximize the subject's feeling of safety. Subjects were widely separated; there was at least one blank seat between adjacent subjects. The few NCOs present in certain groups spontaneously selected seats near each other in a rear corner of the room. It is quite possible that many EM were not aware of their presence.

DRUG USAGE AS RELATED TO VIETNAM EXPERIENCE

It has often been asserted that service in Southeast Asia, particularly Vietnam, tends to stimulate drug usage. The implication is that the frustration, the boredom, and the stress of combat, coupled with the ready availability and low cost of drugs in Vietnam, all tend to create a situation conducive to drug use or drug experimentation. The questionnaire data gathered in this research study were analyzed in an effort to clarify this matter.

The data for EM and for officers were analyzed separately. Within each category subjects were divided into two groups on the basis of whether or not they had served in Vietnam (or elsewhere in Southeast Asia) during the previous two years. Next, the percentages of men in each group who reported that they were *currently* using each drug type were determined. These figures for the EM are presented in Table 10.

[1] These Ns total 667 instead of the 663 used in the final EM sample, because the analysis was done prior to the elimination of certain data or subjects. The trend of this data suggested that it would not be worthwhile to reanalyze with a corrected N.

Table 10

Drug Usage by EM Who Have or Have Not Had Recent Vietnam Experience

(Percent)

Drug Type	With Vietnam Experience[a] (N = 326)			Without Vietnam Experience (N = 333)		
	Current Users	Ex-Users	Total	Current Users	Ex-Users	Total
Marijuana	44.8**	24.8**	69.6	53.7	15.3	69.1
Hallucinogens	20.2	8.9	29.1	26.1	8.4	34.5
Amphetamines	24.2	16.6	40.8	25.2	12.6	37.8
Barbiturates	16.6	12.0	28.5	19.8	7.8	27.6
Cocaine	9.5	9.5**	19.0**	8.1	2.4	10.5
Narcotics	10.7	13.5**	24.2**	9.0	3.6	12.6

[a]The symbol ** indicates statistical significance, $p<.01$, based on chi square comparison of corresponding percentages for With and Without Vietnam experience.

It is rather surprising to observe that for all drug types (except cocaine and narcotics), the percentage of current users is higher for those without Vietnam experience than for those with such experience. The difference is statistically significant only with respect to marijuana. Since this finding is directly opposite to what was expected, further analyses were performed in the hope of clarifying the situation.

The smaller incidence of drug usage by Vietnam returnees could conceivably be due to a greater tendency among these men, compared to men without Vietnam experience, to stop using drugs. This hypothesis was checked by determining the number of men among the noncurrent user groups who indicated that they had formerly used specific drugs, but did not expect to do so again. Such men were labeled "ex-users."

The percentages of ex-users among those with and without Vietnam experience, are presented in Table 10. It is apparent that the percentages of ex-users are generally higher for the Vietnam returnees than for the nonreturnees. The differences are highly significant with respect to marijuana, cocaine, and narcotics. Thus, these data indicate that a strong tendency exists for EM drug users to cease using drugs upon returning to the United States from Vietnam.

In searching the data for the "ex-users" it was observed, incidentally, that a sprinkling of men who had reported that they currently used a drug also reported, on another question, that they did not expect to use it again. This inconsistency must have arisen from some confusion in their minds regarding the precise meaning of the word "current." These men were not counted among the "ex-users."

Also shown in Table 10 are the percentages of men who have *ever used* specific drugs. The Vietnam returnees and nonreturnees do not differ significantly in percentage who have "ever used" drugs, except as regards cocaine and narcotics. It is well known that these drugs are inexpensive and readily available in Vietnam, but not in the United States. Narcotics are highly addictive, and cocaine, while not addictive in the pharmacological sense, is nevertheless highly conducive to producing a psychological dependency. Thus, it is not surprising that cocaine and narcotics users are more numerous among Vietnam returnees.

Table 11 presents information concerning the incidence of drug usage by officers, as related to Vietnam experience. Again, it is found that those officers without Vietnam

experience have higher current usage rates for drugs of every type than those with Vietnam experience, although the difference is significant only with respect to the amphetamines.

Table 11

Drug Usage by Officers Who Have or Have Not Had Recent Vietnam Experience

Drug	Percent Who Report Current Use		Chi Square[a]
	With Vietnam Experience (N = 110)	Without Vietnam Experience (N = 210)	
Marijuana	4.5	12.4	5.296
Hallucinogens	0	2.4	2.837
Amphetamines	0	5.7	6.737*
Barbiturates	0	1.4	1.755
Cocaine	0	1.0	1.219
Narcotics	0	.5	.687

[a]The symbol * indicates statistical significance, $p<.05$.

To determine whether this surprising difference might be explained, as in the case of the EM, by a greater tendency among Vietnam returnees to discontinue drug use, the number of ex-users of each type of drug was added to the number of current users, and new percentages computed. This analysis did not alter the interpretation suggested by the data of Table 11. In other words, by either type of analysis, the data clearly indicate that, in this sample of subjects, current drug usage was consistently higher among officers who had *not* served in Vietnam.

A search was made for other differentiating characteristics that might explain the difference in drug usage rates between officers with Vietnam experience and those who had not had that duty. The results of this search are summarized in Table 12. The information clearly indicates that officers with and without Vietnam experience are two different kinds of populations. Those with Vietnam experience are more senior in rank, have greater time in the service, and contain a greater proportion of committed career men. It is not surprising that such men are relatively unlikely to use or experiment with drugs. The group of officers without Vietnam experience, on the other hand, contains a larger proportion of ROTC graduates and a larger proportion with college degrees. Since drug use is known to be particularly high among college students (5), it is not surprising that a group of officers containing a large number of recent college graduates would also include more drug users than a group of officers containing fewer recent college graduates.

It is a reasonable conclusion from the foregoing analysis that Vietnam experience, per se, is not an important factor in drug use by junior officers.

DOES MARIJUANA USE LEAD TO THE USE OF OTHER DRUGS?

It has often been asserted that marijuana use tends to lead to the use of other drugs. Some individuals take the position that even if marijuana were clearly known to be harmless, it would still be unwise to legalize it, because to do so would encourage its use

Table 12

Characteristics That Differentiate Between Officers With and Without Vietnam Experience

(Percent)

Characteristic	With Vietnam Experience	Without Vietnam Experience
Rank of 03	39	6
ROTC graduate	30	69
More than 3 years' service	66	8
"Definitely a career man"	35	11
College graduate	50	91

and ultimately cause an increase in the use of other more dangerous drugs. The questionnaire data obtained in this project were analyzed in such a way as to explore the relationship between marijuana use and the use of other drugs.

Officers and EM were each divided into two groups: (a) those who had never used marijuana (response 1 or 2 to Question 20) and (b) those who had used marijuana (response 3, 4, or 5 to Question 20). Next, for each of these groups, percentages who had ever used each of the other drug types were computed. The results are presented in Table 13.

Table 13

Use of Other Drugs by Those Who Have and Have Not Ever Used Marijuana

(Percent)

Drug Type	EM		Officers	
	Who Have Used Marijuana (N = 465)	Who Have *Not* Used Marijuana (N = 196)	Who Have Used Marijuana (N = 95)	Who Have *Not* Used Marijuana (N = 223)
Hallucinogens	45.6	< 1	11.6	0
Amphetamines	55.2	4.1	29.5	9.9
Barbiturates	39.8	2.6	9.5	0
Cocaine	20.6	< 1	5.2	0
Narcotics	26.0	< 1	3.2	0

The data in Table 13 indicate quite clearly that, for both officers and EM, a history of marijuana use is strongly related to the use of other drugs. The differences between those who have and those who have not used marijuana are so large that there can be no doubt of their statistical significance, even without computing signficance indices. There are, to be sure, a few users of other drugs who have never used marijuana. It should also be kept in mind that the percentages appearing in Table 13, under the Have-Used columns, when subtracted from 100%, represent the percentages of marijuana users who have *not* gone on to other drugs.

It is noted that amphetamines are the drug type appearing most prominently in all four columns of Table 13. The amphetamine category includes not only methamphetamine ("speed"), but also common diet pills, pep pills, and so forth, that are legal, prescription drugs. The questionnaire instructions specified that drug use under a doctor's prescription was not to be included in responding to the questionnaire, but it is entirely possible that some subjects did not notice or heed this injunction.

CHARACTERISTICS OF REGULAR MARIJUANA USERS

The questionnaire data made it possible to identify men who are committed to the continued use of marijuana and also to identify men at the other end of the attitude scale, who have never used marijuana and never intend to. All men who checked response 4 or 5 to Question 20 are considered "regular users;" all who checked response 1 to this question are referred to as "principled non-users."

It is of interest to determine whether there are demographic or other background factors that differentiate between these two groups. Such information might conceivably be of value in identifying "high risk" men, that is, those who are more likely than others to become regular users of marijuana.

Of the total sample of 663 EM, 265 regular users and 178 principled non-users were identified. Calculations were made of the percentages of these two groups who marked each possible response to 18 demographic items on the questionnaire. The two groups appeared to differ appreciably on 12 of these 18 items. Subsequent Chi Square tests indicated that all these differences were statistically significant beyond the .01 level of confidence. These differentiating characteristics are listed in Table 14.

Although all the characteristics listed in Table 14 differentiated significantly between the two groups, only one characteristic can be said to be *typical* of the regular user of marijuana, namely, that he is "very dissatisfied" with his present Army job. This was true of 50% of the regular users, but of only 29% of the principled non-users. A single characteristic that is typical of the principled non-user is that he tends to come from a small town or rural area. This was true of 54% of the principled non-users.

The regular user tends, to a greater extent than the principled non-user, to have the following characteristics: (1) he is almost never a career Army man; (2) he is very dissatisfied with his Army job; (3) he has had legal difficulties in the Army and in civilian life; (4) he has been AWOL at least once; (5) he has had some college, but was not motivated to do good school work; and (6) he considers himself to be not at all religious.

The principled non-user is in many ways the opposite of the foregoing. He is more likely to be a career Army man, to like his Army job, to be a Protestant, and to have been reared in a small town or rural area. He is less likely to have been AWOL, to have been reared as a Catholic, or to be unreligious.

STATEMENTS ABOUT MARIJUANA THAT ARE MOST ACCEPTABLE TO PEOPLE WITH VARIOUS ATTITUDES TOWARD MARIJUANA

Although the various attempts to confirm Sherif's principle with the Card Sort data were generally unsuccessful, these data may still be useful in indicating some of the kinds of statements or beliefs about marijuana that are most acceptable to people who hold differing attitudes toward this drug.

Table 14

Characteristics Differentiating Principled Non-Users and Regular Users of Marijuana Among EM

(Percent)

Characteristic[a]	Principled Non-Users (N = 178)	Regular Users (N = 265)
"Definitely a career man"	12	2
Well satisfied with present Army job	41	21
Very dissatisfied with present Army job	29	50
Had serious troubles with law in civilian life	15	32
Had serious troubles with law in Army life	28	43
Has been AWOL at least once	23	37
Reared in small town or rural area	54	30
Had some college	21	31
Had little or no interest in grades in civilian schooling	20	33
Reared as a Catholic	18	31
Currently a Protestant	49	35
Not at all religious now	9	22

[a]All characteristics listed here differentiated significantly (at the .05 level) between the two groups of subjects, using the Chi Square test.

Question 20 on the Questionnaire asks the subject to indicate what experience, if any, he has had with marijuana. The response options are: (1) Have never used and never will, (2) Have never used, but I may try it sometime, (3) Have used but don't expect to use it again, (4) Have used a few times and expect to continue, and (5) Have used many times and expect to continue. These various responses can be construed as expressions of attitude toward marijuana. It is of interest to determine what beliefs about marijuana are held most commonly by individuals in each of these five attitude categories. Such information may be of value in suggesting promising "pitches" for drug abuse prevention efforts.

It will be recalled that, after sorting the Sherif statements, subjects were asked to indicate which pile they agreed with most. It is therefore possible to determine what statements subjects holding each of the five attitudes toward marijuana most often placed in their most-agreed-with piles.

The statements most favored by "principled non-users" are listed in Table 15. There is nothing noteworthy here. All the top ranking statements are clearly anti-marijuana.

Those subjects who indicated on Question 20 that they have never used marijuana, but may try it sometime, may be dubbed "contemplators." The statements most widely accepted by this group (N = 75) are listed in Table 16. The first and fourth of these statements appear to have a "pro" quality. The third, fifth, and sixth have a clearly "anti" quality. Two of these pertain to the hazards of driving while under the influence of marijuana, and the other concerns the impairment of judgment produced by marijuana. Perhaps it would be advisable to stress these concerns in prevention programs.

Table 15

Statements About Marijuana Most Favored by Principled Non-Users

(Percent; N = 386)

Statement	Placing in Most-Agreed-With Pile
They shouldn't pass any laws that would make marijuana as easy to get as alcohol	38.1
Marijuana users often go on to more dangerous drugs	36.3
Marijuana distorts a person's judgment	36.3
Marijuana users often come in contact with pushers and other criminals	36.3
Marijuana is a threat to public safety	35.8

Table 16

Statements About Marijuana Most Favored by Contemplators[a]

(Percent; N = 75)

Statement	Placing in Most-Agreed-With Pile
The penalties for the possession of marijuana should be reduced	30.7
Marijuana offers an escape from reality	29.3
Even if they legalize marijuana, it still should be a crime to drive an automobile while under the influence of marijuana	29.3
There are lots of people who use marijuana occasionally, but never become regular users	29.3
Marijuana distorts a person's judgment	28.0
Marijuana greatly affects one's driving ability	28.0

[a]Those who said they might try marijuana sometime.

What statements were most popular among those 269 subjects who have used marijuana, but don't expect to use it again? Table 17 provides information on this point. The statements appearing here suggest some ambivalence on the part of these subjects. Four of the seven items have a "pro" quality. The three "anti" items deal with the dangers of driving under the influence, and with the fact that marijuana use brings one in contact with pushers and other criminals.

The statements favored by the committed users (those who expect to continue using marijuana) are listed in Table 18. As expected, all these are clearly "pro." It is noteworthy that the percentages in Table 18 are much higher than those in the preceding three tables. Evidently, regular users are more homogeneous in their beliefs about marijuana than are those who have not made such a commitment. Not surprisingly, all these committed users agreed strongly on statements that were defenses or justifications of marijuana use.

Table 17

Statements About Marijuana Most Favored by Those Who Have Used Marijuana, But Don't Expect to Use it Again

(Percent; N = 269)

Statement	Placing in Most-Agreed-With Pile
Marijuana is smoked by people from all walks of life	39.0
Even if they legalize marijuana, it should still be a crime to drive an automobile under the influence of marijuana	37.6
Marijuana is the least harmful of all drugs	32.0
Marijuana doesn't leave you with a hangover	32.0
Marijuana greatly affects one's driving ability	31.9
Marijuana users come in contact with pushers and other criminals	31.9
There are lots of people who use marijuana occasionally, but never become daily users	31.6

Table 18

Statements About Marijuana Most Favored by Regular Users

(Percent; N = 284)

Statement	Placing in Most-Agreed-With Pile
The penalties for the possession of marijuana should be reduced	63.3
Marijuana is smoked by people from all walks of life	58.8
There are lots of people who use marijuana occasionally, but never become daily users	58.4
Marijuana doesn't leave you with a hangover	58.1
Marijuana is the least harmful of all drugs in use	57.0

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LITERATURE CITED

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Appendix A

DRUG QUESTIONNAIRE

DO NOT SIGN YOUR NAME TO THIS QUESTIONNAIRE

This questionnaire is being given as part of a research project being conducted by the Human Resources Research Organization, a civilian agency working under contract with the Army.

You will be asked many questions about your use, if any, of illegal drugs. Since you will not sign your name, you can be sure that you will never get into trouble by being truthful. Your cooperation will be appreciated.

The Human Resources Research Organization
300 N. Washington Street
Alexandria, Virginia 22304

For each question, circle the number in front of the answer which is most appropriate for you.

BACKGROUND INFORMATION

1. What is your rank?

   1 E-1, E-2, or E-3
   2 E-4 or E-5
   3 E-6, E-7, E-8, or E-9
   4 O-1 or O-2

2. What was your age on your last birthday?

   1 19 or under
   2 20 or 21
   3 22 or 23
   4 24 or 25
   5 26 or 27
   6 Over 27

3. How did you happen to join the Army?

   1 I got drafted.
   2 Technically, I'm a volunteer, but actually I just wanted to beat the draft to the punch.
   3 I enlisted voluntarily in order to learn a trade or to get certain educational benefits.
   4 I enlisted because I was ordered by a court to either enlist or go to jail.
   5 I enlisted because I thought I would like Army life.
   6 I came in through the ROTC program.

4. How long have you been on active duty in the Army?

1 Less than 1 year
2 Between 1 and 2 years
3 Between 2 and 3 years
4 More than 3 years

5. During the past two years have you served in Southeast Asia (Vietnam or any other country)?

1 Yes
2 No

6. What are your intentions with regard to staying in the Army?

1 I'm desperate to get out as soon as I possibly can.
2 I'm reasonably contented to finish out my tour of duty, but I do not plan to re-enlist.
3 I'm not sure whether I will re-enlist or not.
4 I'm pretty sure I will re-enlist for another hitch, but am not sure I want to make a career of the Army.
5 I'm definitely a career man.

7. What kind of duty assignment do you have in the Army at this time?

1 Trainee or student
2 Administrative, or school support type duty
3 Combat MOS
4 Non-combat MOS

8. How well satisfied are you with your present Army job?

1 I like it better than any other Army job I know of.
2 On the whole, I'm pretty well satisfied.
3 It's okay; I neither like it nor dislike it.
4 On the whole, I'm somewhat discontented with my Army job.
5 I despise my Army job.

9. Back in civilian life, to what extent did you ever get in trouble with the law?

1 Only minor traffic tickets, or nothing
2 Tickets requiring court appearance
3 More serious court actions
4 Serious court actions with fine imposed
5 Serious court action resulting in confinement in prison

10. To what extent have you gotten into legal troubles with the Army?

1 Never
2 One Article 15 only
3 More than one Article 15
4 Summary Court
5 Special Court/no confinement
6 Special Court with confinement

11. Regardless of whether you ever got caught or not, how many times have you been AWOL? (Absent Without Official Leave for more than 24 hours.)

1 Never AWOL
2 AWOL one time
3 AWOL more than once

12. In what type of community were you raised?

1 Farm or rural
2 Small town (population under 10,000)
3 Average size town (10,000 - 100,000)
4 Suburb of a city
5 City (100,000 - 500,000)
6 Large city (more than 500,000)

13. How much education have you had?

1 Did not finish high school.
2 Finished high school, but no college.
3 Obtained GED while in Army.
4 Some college, but did not graduate.
5 Graduate from college, but nothing beyond.
6 Some graduate work.

14. When you were last in civilian school, what kind of student were you?

1 I tried to get the very best grades I could.
2 I put out a reasonable effort, but I didn't knock myself out for grades.
3 I just tried to get by.
4 I didn't give a damn about grades.

15. In what religion were you brought up?

1 Protestant
2 Catholic
3 Jewish
4 Other
5 None

16. To what religion do you <u>now</u> belong?

1 Protestant
2 Catholic
3 Jewish
4 Other
5 None

17. How religious are you now?

1 Very religious
2 Moderately religious
3 Slightly religious
4 Not at all religious

18. How religious are your parents? (If they are not living, how religious <u>were</u> they?)

1 Very religious
2 Moderately religious
3 Slightly religious
4 Not at all religious
5 I'm not sure

Go on to the next page

DRUG QUESTIONS

Opposite each type of drug listed below, please circle the number which indicates what experience (if any) you have had with that type of drug. Do not count any times you used a drug because a doctor gave you a prescription for it.

		Have Never Used and Never Will	Have Never Used but I May Try It Sometime	Have Used It But Don't Expect to Use It Again	Have Used It a Few Times and Expect To Continue	Have Used It Many Times and Expect to Continue
19.	ALCOHOL: Beer, wine, or hard liquor	1	2	3	4	5
20.	MARIJUANA: Hashish or Synthetic THC (grass, pot, hash, etc.)	1	2	3	4	5
21.	HALLUCINOGENS: LSD (acid), mescaline, peyote, STP, psilocybin, etc.	1	2	3	4	5
22.	AMPHETAMINES (Uppers) Methedrine (speed), pep pills, diet pills, Benzedrine (bennies), etc.	1	2	3	4	5
23.	BARBITURATES (Downers) Nembutal, Seconal, (red devils), barbs, yellow jackets, etc.	1	2	3	4	5
24.	COCAINE (snow)	1	2	3	4	5
25.	NARCOTICS (Hard drugs): Heroin (horse, smack, junk), opium morphine, methadone, etc.	1	2	3	4	5

Opposite each type of drug listed below, please circle the number which indicates how often you currently use it. Do not count any times you have used a drug because a doctor gave you a prescription for it.

		I CURRENTLY USE IT:						
		Not at All	Less than Once a Month	About Once a Month	About Once a Week	Several Times a Week	Generally Once a Day	Several Times a Day
26.	ALCOHOL: Beer, wine, or hard liquor	1	2	3	4	5	6	7
27.	MARIJUANA: Hashish or Synthetic THC (grass, pot, hash, etc.)	1	2	3	4	5	6	7
28.	HALLUCINOGENS: LSD (acid), mescaline, peyote, STP, psilocybin, etc.	1	2	3	4	5	6	7
29.	AMPHETAMINES (Uppers): Methedrine (speed), pep pills, diet pills, Benzedrine (bennies), etc.	1	2	3	4	5	6	7
30.	BARBITURATES (Downers): Nembutal, Seconal, (red devils), barbs, yellow jackets, etc.	1	2	3	4	5	6	7
31.	COCAINE (snow)	1	2	3	4	5	6	7
32.	NARCOTICS (Hard drugs): Heroin (horse, smack, junk), opium, morphine, methadone, etc.	1	2	3	4	5	6	7

During the past month, have you used: (Check Yes or No for each)

33. Marijuana (or hash) ___ Yes ___ No

34. LSD (or any other hallucinogen) ___ Yes ___ No

35. Speed (or any other upper) ___ Yes ___ No

36. Barbiturates (downers) ___ Yes ___ No

37. Heroin (or any other hard drug) ___ Yes ___ No

38. It is sometimes said that people who use beer or other alcoholic beverages tend to lose their interest in alcohol after they start using drugs. Which of the following statements applies to you?

1 Question not applicable since I don't use either alcohol or drugs.
2 I use alcohol some, but I don't use drugs at all.
3 I have never had much interest in alcohol and I still don't but I do use a drug now.
4 I used to use alcohol, but I have less interest in it now that I'm using a drug.
5 I have been using alcohol and I still do, but I am also using a drug now.

39. If you are currently using any kind of drug, what do you think is your main reason for doing so? In other words, what do you get out of it? (Select only one answer.)

1 Doesn't apply; I don't use drugs at all.
2 It helps me to relax and forget my troubles.
3 It makes me feel like one of the gang, not an outsider.
4 I just like the feeling it gives me.
5 It helps to give me courage to face an unpleasant or scary situation.
6 It makes me enjoy eating so much better.
7 It makes me enjoy sex so much better.
8 It gives me a better understanding of myself and my environment.
9 It's a way of showing my contempt for "the establishment".
10 It keeps me from being bored.

Most of the remaining questions are concerned with marijuana and hashish. Since these two drugs are basically the same, we will not bother to name them both in every question. Remember that when we ask about marijuana, we mean to include hashish, also.

40. How many times in your life have you used marijuana (or hash)?

1 Never
2 Once
3 Two to three times
4 Four to ten times
5 Ten to twenty times
6 Twenty to fifty times
7 More than fifty times

41. About how long ago did you <u>first</u> use marijuana?

1 Have never used it.
2 Within the past month.
3 Two or three months ago.
4 Three to six months ago.
5 Six to twelve months ago.
6 More than a year ago.

42. Was your first use of marijuana in the Army or in civilian life?

1 In the Army.
2 In civilian life.
3 Never used it.

43. If you are a fairly regular user of marijuana (or hash) now, when did you become a regular user?

1 Not applicable; I am not a regular user.
2 Back in civilian life.
3 Since I entered the Army.

44. If you do use marijuana (or hash) at least occasionally, under what sort of circumstances do you generally use it?

1 Not applicable; I don't use it.
2 While socializing with friends during off-duty hours.
3 All by myself, during off-duty hours.
4 With one or more friends, while on duty.
5 All by myself, while on duty.

45. If you do use marijuana (or hash) at least occasionally, do you generally stop as soon as you get a nice high or do you keep going until you are really zonked?

1 Not applicable; I don't use it.
2 I generally stop when I get a nice high.
3 I generally keep going until I get really zonked.

46. Have you ever felt unsure that you could do your military job properly because you were stoned (on marijuana or hash) at the time?

1 Not applicable; I don't use it.
2 Never
3 Once or twice
4 Several times
5 Many times

47. Have you ever actually fouled up in doing your job because you were stoned on marijuana or hash at the time?

1 Not applicable; I don't use it.
2 Never
3 Once or twice
4 Several times
5 Many times

48. Have you ever observed anybody else in your outfit fouling up something and you were pretty sure it was because he was stoned on marijuana or hash?

1 Never
2 Once or twice
3 Several times
4 Many times

49. If you have ever used marijuana or hash, have you ever had any unpleasant reactions to it (for example, gotten sick or scared or gone into a panic)?

1 I've never used it.
2 Yes, I've had unpleasant reactions at least once.
3 No, although I have used it, I've never had any unpleasant reactions.

50. Are you personally acquainted with anyone who has had any unpleasant reaction to marijuana or hash?

1 No
2 Yes, one person
3 Yes, more than one person

51. Do you think that the military efficiency of your unit is lowered as a result of marijuana usage by the men?

1 Not in the least
2 A little bit, perhaps
3 Yes, to a moderate extent
4 Yes, to a very serious extent

52. How would you feel about it if something happened which would make it impossible for you to use any marijuana or hash for the next week?

1 It wouldn't bother me in the least.
2 I would be mildly disappointed.
3 I would be badly disappointed, but am sure I could get along.
4 It would shake the hell out of me.

For each of the types of drugs listed below, estimate what percentage of the men in your outfit use it at least occasionally.

53. Marijuana, etc. _____%

54. Hallucinogens, acid, etc. _____%

55. Amphetamines, speed, etc. _____%

56. Barbiturates (downers), etc. _____%

57. Cocaine _____%

58. Narcotics, heroin, etc. _____%

59. What policy do you think the Army should have with regard to marijuana? (Mark the one that comes closest to what you would recommend.)

1 Present regulations should stay in effect.
2 Men should be allowed to use pot freely when off duty, but never while on duty.
3 Men should be allowed to use pot almost anytime they want, but should be punished if they are judged to be unfit for duty. In other words, if a man can smoke pot and still do his duty competently, he should be left alone.

60. As you may know, the Army now has an amnesty program. This program permits any soldier with a drug problem to turn himself in for treatment without getting into legal trouble for doing so. Do you think this program is a good idea?

1 Yes
2 No
3 Don't know

61. What effect do you think the amnesty program is probably having on the number of men who use <u>marijuana</u>?

1 Results in fewer men using marijuana.
2 Results in more men using marijuana.
3 Has no effect on marijuana usage.

62. In filling out this questionnaire, were your answers influenced by the fear that maybe you could get into trouble by being truthful?

1 No, I answered every question as honestly as I could.
2 I'm not quite sure this survey is on the up-and-up.

PERSONALITY INVENTORY

Read each statement and decide whether it is true for you or false for you. If a statement is true, or mostly true for you, circle the T. If a statement is false, or mostly false for you, circle the F. Go ahead.

T F 1. I believe it's best to keep my mouth shut when I'm in trouble.

T F 2. Sometimes I feel like smashing things.

T F 3. Once in a while I think about thoughts too bad to talk about.

T F 4. I like most of the guys in my outfit.

T F 5. I think that one of the most important things children should learn is when to <u>disobey</u> authorities.

T F 6. I do not always tell the truth.

T F 7. I wish I could be as happy as other people seem to be.

T F 8. My table manners aren't as good when I'm eating alone as when I am out in company.

T F 9. Politically I'm something of a radical.

T F 10. I have had more than my share of things to worry about.

T F 11. I get angry sometimes.

T F 12. Any man who is able and willing to work hard has a good chance of getting ahead.

T F 13. I dislike following a set schedule.

T F 14. Sometimes I put off until tomorrow what I should do today.

T F 15. I wish I had more self confidence.

T F 16. Sometimes when I'm not feeling good I get grouchy.

T F 17. I believe women ought to have as much sexual freedom as men.

T F 18. I like to know some important people because it makes me feel important.

T F 19. I really enjoy good rock music.

T F 20. I think that disobedience to the government is sometimes justified.

T F 21. I would rather win than lose in playing a game.

T F 22. Most of the time I'm terribly bored.

T F 23. I believe that all laws should be strictly enforced.

T F 24. I do not like everyone I know.

T F 25. I feel afraid when I look down from a very high place.

T F 26. I like to visit places that I've never been to before.

T F 27. I am more religious than most people.

T F 28. I gossip a bit sometimes.

T F 29. I like to talk about sex.

T F 30. I have a very poor sense of time.

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13. ABSTRACT

The purpose of this study was to compare the effectiveness of several methods of acquiring data on the nontherapeutic use of drugs. Data were collected by means of an anonymous questionnaire, a Randomized Inquiry technique, and a Card-Sort procedure. Subjects totaled approximately 1,100 enlisted men, noncommissioned officers, and junior officers, both Vietnam veterans and men without such experience. The sample was obtained from four Army posts between September and November, 1971. For enlisted men, the questionnaire and the Randomized Inquiry technique yielded substantially equivalent drug usage rates; for officers, the Randomized Inquiry technique yielded somewhat higher rates than the questionnaire. The Card-Sort procedure, as used here, was less effective as a method of collecting data on drug usage.

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*Drugs						
Drug Usage						
*Hallucinogenic Drugs						
Marijuana						
*Narcotics						
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2 CO USA CDC AG AGCY FT BENJ HARRISON IND
1 CG USA TNG CTR & FT LEONARD WOOD ATTN ACOFS G3
1 CG USA INF CTR ATTN AJIGT-T FT BENNING
1 CG USA TNG CTR INF ATTN ACOFS G3 FT DIX
1 CG USA TNG CTR ATTN ACOFS G3 FT JACKSON
1 CG USA TNG CTR INF ATTN ACOFS G3 FT LEWIS
1 CG USA TNG CTR INF & FT ORD ATTN ACOFS G3
61 CG USA TNG CTR INF ATTN ACOFS G3 FT POLK
5 CO USA MED TNG CTR ATTN DIR OF TNG FT SAM HOUSTON
20 CG USA AD CTR ATTN G3 FT BLISS
1 CG USA TNG CTR INF ATTN ACOFS G3 FT CAMPBELL
3 LIB ARMY WAR COLL CARLISLE BKS
1 DIR OF MILIT PSYCHOL + LDRSHP US MILIT ACAD WEST POINT
2 COMDT NATL WAR COLL FT LESLEY J MCNAIR ATTN CLASSF RECORDS BR LIB
1 LIB USA ARMOR SCH FT KNOX
1 LIB ARMY QM SCH FT LEE
2 COMDT US ARMY SOUTHEASTERN SIG SCH ATTN EDUC ADV FT GORDON
1 COMDT ARMED FORCES STAFF COLL NORFOLK
1 DIR OF MILIT INSTR US MILIT ACAD WEST POINT
1 CO USA INTELL CTR & SCH ATTN DIR OF DOC & LIT FT HUACHUCA
1 COMDT USA CA SCH ATTN OFC OF DOCTRINE DEVEL LIT & PLNS FT BRAGG
1 COMDT USA CA SCH ATTN LIB FT BRAGG
1 LIBN USAIS FT BENNING
1 LEADERSHIP COM CO OPS DEPT US ARMY INF SCH FT BENNING
12 ADMIN OOC ATTN: TCA (HEALY) CAMERON STA ALEX., VA. 22314
1 USA BEHAVIOR & SYS RSCH LAB ATTN CRO-AIC ARL VA
2 TNG & DEVEL DIV ODCSPERS
1 COMDT USA CBT SURVEIL SCH & TNG CTR ATTN 1ST CBT TNG BDE ARIZ
1 USA LIB DIV-TAGO ATTN ASDIRS
15 CG CONARC ATTN AFIT-STM FT MONROE
2 CG CONARC ATTN LIB FT MONROE
2 CALIF NG 40TH ARMORED DIV LOS ANGELES ATTN AC OF SG3
3 CG ARMY ARMOR CTR FT KNOX ATTN G3 AIBKGT
3 CG 4TH INF DIV (MECH) & FT CARSON ATTN ACOFS G3
1 3 CG 82ND ABN INF DIV ATTN ACOFS G3 FT BRAGG
1 DIR ARMY LIB PENTAGON
1 CG USAFAC & FT SILL ATTN AKPSIGT-TNTN
15 CO 1ST AIT BGDE ATTN G3 SEC FT BLISS
8 CG USATCI & FT POLK ATTN AKPPO-DCOT
1 CINC US ATLANTIC FLT CODE 312A USN BASE NORFOLK
1 CINC PACIFIC SCIEN ADV GP (J30S) BOX 13 FPO 96610
1 CDR TNG COMMAND US PACIFIC FLT SAN DIEGO
5 TECH LIB PERS LIB BUR OF NAV PERS ARL ANNEX
1 CO FLT ANTI-AIR WARFARE TNG SAN DIEGO
2 CO FLT TNG CTR NAV BASE NEWPORT
1 CDR FLT TNG GP NAV BASE CHARLESTON
1 CO FLEET TNG CTR US NAV STA SAN DIEGO
1 PRES NAV WAR COLL NEWPORT ATTN MAHAN LIB
1 DIR US NAV RES LAB ATTN CODE 5120
1 DIR NAVAL RSCH LAB ATTN LIB CODE 2029 WASH DC
1 LIB NAV MED RES LAB NAV SUB BASE GROTON
3 OIC NAV PERS RES ACTVY SAN DIEGO
1 DIR PERS RES LAB NAV PERS PROGRAM SUPPORT ACTIVITY WASH NAV YD
5 COMDT MARINE CORPS HQ MARINE CORPS ATTN CODE AO-1B
2 COMDT PTP COAST GUARD HQ
1 CO US COAST GUARD TNG CTR GOVERNORS ISLAND NY
1 CO US COAST GUARD TNG CTR CAPE MAY NJ
1 CO US COAST GUARD INST OKLA CITY OKLA
1 SUPT US COAST GUARD ACAD NEW LONDON CONN
1 OPNS ANLS OFC HQ STRATEGIC AIR COMD OFFUTT AFB
1 AIR TNG COMD/XPT RANDOLPH AFB
1 ATC ATXRQ RANDOLPH AFB
2 MILIT TNG CTR OPE LACKLAND AFB
1 HQS ATC DCS/TECH TNG (ATTMS) RANDOLPH AFB
1 USAFA DIR OF THE LIB USAF ACAD COLO
1 DIR NATL SECUR AGY FT GEO G MEADE ATTN DIR OF TNG
3 CIA ATTN CRS/ADD STANDARD DIST
1 SCI INFO EXCH WASHINGTON
2 ERIC OE WASH DC
3 CTR FOR RSCH IN SOCIAL SYS ATTN LIBN MD
1 IDA RSCH & ENG SUPT DIV ARL VA
1 AMER PSYCHOL ASSOC WASHINGTON ATTN PSYCHOL ABSTR
1 AMER BEHAV SCI CALIF
2 LIB GEO WASH UNIV ATTN SPEC COLL DEPT WASH DC
1 DIR PERSNL & COMM ACTY FT BENNING
1 HOSPITAL COMDR DARNALL ARMY HOSP FT HOOD
1 CO 138TH ENGR GP FT RILEY
1 OPTY G1 ACOFS 18TH ABN CORP FT BRAGG

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